ODR

RS-P1

DUAL 1/3 OCTAVE DIGITAL EQUALIZER
OPTICAL DIGITAL REFERENCE SYSTEM

DOUBLE ÉGALISEUR NUMÉRIQUE 1/3 OCTAVE
SYSTEME DE REFERENCE OPTIQUE NUMERIQUE

PREMIER

PIONEER
The Art of Entertainment

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OPTICAL DIGITAL REFERENCE SYSTEM

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RS-P1

OWNER'S MANUAL
MODE D'EMPLOI

Thank you for purchasing the PIONEER ODR product. Please read this manual carefully before you start operation.
This manual contains information for the operation of the system. Please keep it in a safe place for future reference.

Important
The serial number of this equalizer is written on the bottom of this unit. For your own security and convenience, write it down on the enclosed warranty card. Keep the card handy for future reference.

Nous vous remercions sincèrement pour l'achat de notre produit PIONEER ODR. Nous vous recommandons de lire attentivement ce mode d'emploi avant de commencer à utiliser l'appareil.
Ce mode d'emploi comprend des informations concernant le fonctionnement de ce système. Nous vous prions de le conserver dans un endroit sûr pour une future consultation.

Contents

The Dual 1/3 Octave Digital Equalizer RS-P1 is the key unit in the audio unit* with ODR System* to produce quality sound.

Functions:

- Dual 31-band graphic equalizer
- NAC (Natural Acoustic Control)
- Parametric bass/treble control
- Listening position selector
- CD noise gate
- Center speaker output

> Read the manual of the ODR System Control Center RS-K1 or RS-D2 on how to operate the system.

CAUTION

Use moderate volume while driving:

- **For traffic safety and to maintain safe driving condition, keep the volume low enough so that you can still hear normal traffic sound.**

How to use this manual

❖ Symbols

The following three symbols are used in this manual.

CAUTION — never do this.

This symbol indicates dangerous actions which must be avoided.

Note — follow the instructions carefully.

This symbol indicates action which can cause the equipment to fail if it is wrongly performed.

Additional information.

This symbol indicates that further information is available, for example limits on specifications, cautions on operation, and techniques needed to make full use of the unit.

***ODR System**

ODR= Optical Digital Reference, refers to systems or products using optical digital technology.

***Audio units**

By definition, audio units are Digital Amplifiers, Digital Equalizer and other audio equipment for the ODR System including the following:

— Dual 1/3 Octave Digital Equalizer [RS-P1]
— Universal Digital Preamp/Equalizer [RS-P50]
— Digital "Pure Class A" Integrated Amplifier [RS-A1]
— Digital "Class A" Integrated Amplifier [RS-A2]

Dear Customer:

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level:

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

We Want You Listening For A Lifetime

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

Decibel Level	Example
30	Quiet library, soft whispers
40	Living room, refrigerator, bedroom away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at two feet.

THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE

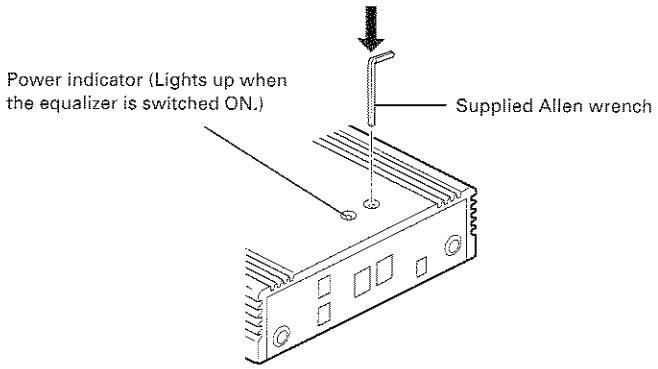
90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.

Reset Button

After connection and installation, press the Reset button with the supplied Allen wrench.

> Connect the RS-P1 equalizer to the power supply before pressing the Reset button. Otherwise, the equalizer may not be reset.
> Keep the supplied Allen wrench in a safe place.

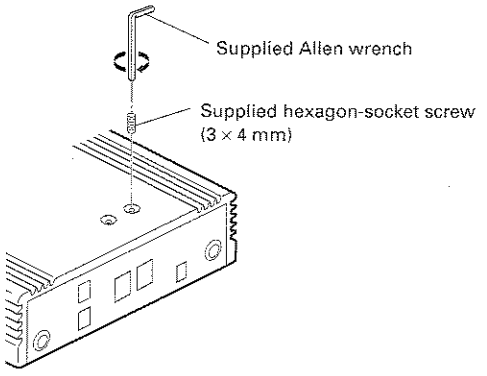


If the built-in microprocessor malfunctions:

- **Do not press the Reset button recklessly even when an error occurs to the built-in microprocessor. Keep in mind that pressing the Reset button will reset all the other audio units such as the crossover network, equalizer, etc. Contact your dealer before pressing the Reset button.**
- **When pressing the Reset button of this unit, press also the Reset buttons of all the other audio units.**

❖ Protection for the Reset button

To prevent accidental pressing after setting and adjusting all audio units, install the supplied hexagon-socket screw onto the Reset button.



To prevent malfunction:

- **Install the hexagon-socket screw so that the screw head becomes flush with the rim of the screw hole.**

Read this before connecting and installing the unit

Before you start

- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- Consult with your nearest dealer if installation requires the drilling of holes or other modifications of the vehicle.
- Connection of the ODR System requires optional optical cables (e.g., CD-AD22) and IP-BUS cables (e.g., CD-IP28). Consult your nearest dealer for more detail.
- Remove the negative (–) terminal of the battery to avoid the risk of short-circuit and damage to the unit.

Connection/installation procedure

Use the following steps to connect and install the unit:

1. **Remove the negative (–) terminal of the battery.**
2. **Connect the cables temporarily.**
   (See pages 10 to 13.)
3. **Set the setting switches of the audio units.**
4. **Connect the negative (–) terminal of the battery.**
5. **Press the Reset button.**
   (See page 7.)
6. **Check for improper operations and noise.**
7. **Remove the negative (–) terminal of the battery.**
8. **Connect and install the unit.**
   (See pages 10 to 15.)
9. **Connect the negative (–) terminal of the battery.**
10. **Check for proper operations.**

When you have finished

❖ When you have finished connecting and installing a complete system for the first time

Check that the system is working correctly, using the procedure under "When you have finished" in the manual for the ODR System Control Center.

❖ When you have finished adding this unit to upgrade the system

1. Connecting the battery.

First, double-check that all connections are correct and that the unit is installed correctly. Reassemble all vehicle components which were previously removed. Then connect the cable to the negative (–) terminal of the battery.

2. Pressing the Reset button.

After changing the setting of setting switches of audio units, press the Reset button by referring to the procedure under "Reset Button" (page 7).

- Press also the Reset button of all other audio units.

3. Turn the vehicle ignition switch to ON or ACC.

4. Testing the system.

Check that the unit and the whole system are working correctly. If the unit does not work, refer to "Troubleshooting" (page 16) to check for incorrect connections.

- **Do not carry out checking procedures of the system for a long period of time. Otherwise the battery may be overloaded.**

Connecting the Units

CAUTION

To prevent short-circuit

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Do not route wires where they will get hot, for example, where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short-circuit through the vehicle body.
- Do not drill a hole into the engine compartment and directly connect the orange leads to the battery. Vibration may eventually wear through the insulation, resulting in a short-circuit through the vehicle body.
- Make sure that wires will not foul moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.

CAUTION

To avoid accidents

- Do not shorten any leads. Otherwise the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead to tap from the lead. The current capacity of the lead will be exceeded, causing overheating.

To prevent damage

- Do not use the Digital Fiber Optic Cable CD-D60 and CD-D15 when using more than four optical cables in the entire ODR System. Otherwise no sound may be output.
- When disconnecting a connector, pull the connector itself. Do not pull the lead itself, as it may come away from the connector.
- Do not ground the speaker lead directly to the vehicle body. Do not connect multiple negative (–) speaker leads to a single terminal.
- The center speaker connected to the equalizer must be high-power types possessing minimum rating of 30 W and impedance of 4 to 8 Ω. Connecting speakers with output and /or impedance values other than those noted here can damage the speakers.

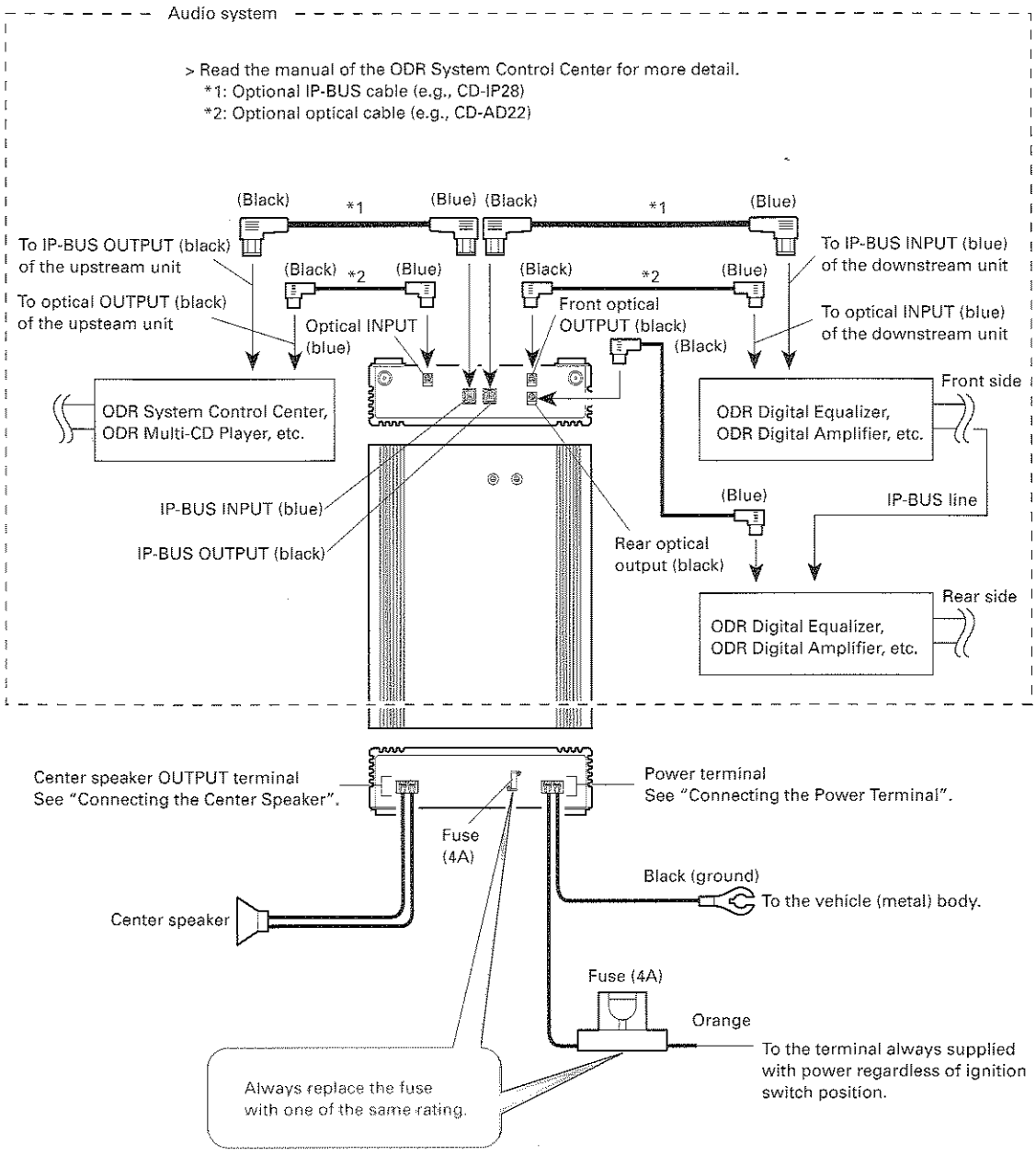
To prevent noise

> Install and route the orange leads supplied with the equalizer as faraway as possible from the IP-BUS and speaker leads. Install and route the orange leads, IP-BUS and speaker leads, and the equalizer as faraway as possible from the antenna, antenna cable and tuner.

Connection of the IP-BUS and optical digital line

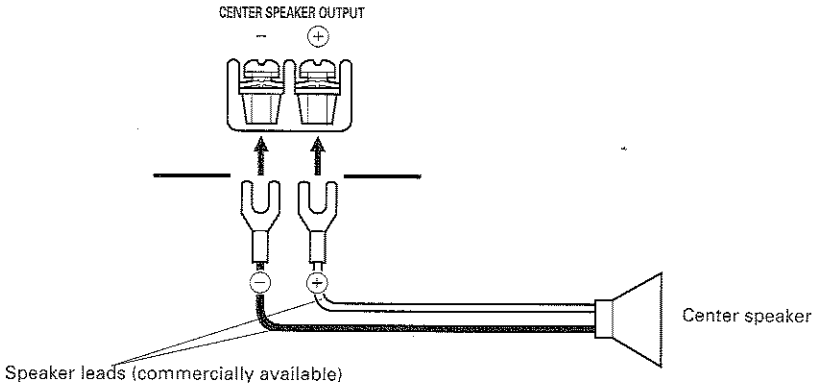
> To prevent incorrect connection, the input side of the IP-BUS and optical digital line connectors is colored in blue, and the output side in black. Connect the connectors of the same colors correctly. (The portions to be connected of the IP-BUS connector are colored.)

Connection Diagram



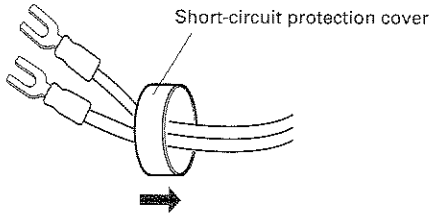
Connecting the Center Speaker

With the equalizer, the center speaker can be connected to the center speaker output terminal

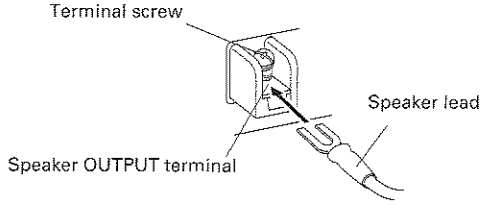


❖ Connecting the speaker terminal

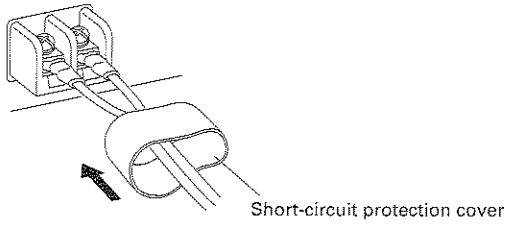
1. **Put the short-circuit protection cover around the speaker leads.**
   - **Be sure to use this cover to prevent short-circuit.**



2. **Connect the speaker leads to the speaker terminal.**
   - **Fasten the speaker leads firmly with terminal screws.**

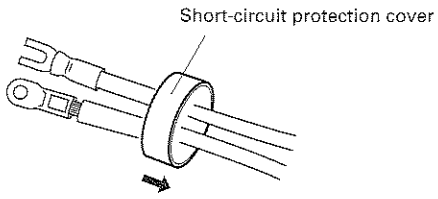


3. **Cover the entire terminal with the short-circuit protection cover.**

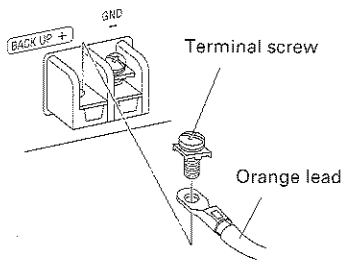


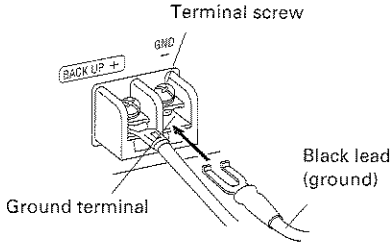
Connecting the Power Terminal

1. **Put the short-circuit protection cover around the orange lead and the black lead.**
   - **Be sure to use this cover to prevent short-circuit.**

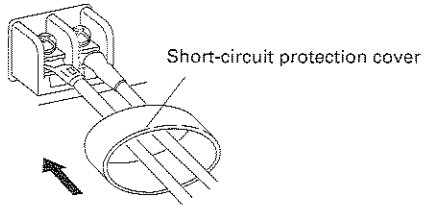


2. **Connecting the leads.**
   - **Securely fasten the leads with terminal screws.**





3. **Cover the entire terminal with the short-circuit protection cover.**



Installation

CAUTION

To avoid accidents

- Do not install the equalizer in:
  - — Places where it could injure the driver or passengers if the vehicle stops suddenly.
  - — Places where it may interfere with the driver, such as on the floor in front of the driver's seat.
- Make sure that leads are not caught in the sliding mechanism of the seats, resulting in a short-circuit.
- Confirm that no parts are behind the panel when drilling a hole for installation of the equalizer. Protect all cables and important equipment such as fuel pipes, brake pipes and power supply harness from damage.
- Install tapping screws in such a way that the screw tip does not touch any lead. This is important to prevent leads from being cut by vibration of the car, which can result in fire.
- To ensure proper installation, use the supplied parts in the manner specified. If any parts other than the supplied ones are used, they may damage internal parts of the equalizer, or they may become loose and the equalizer may come off.

To prevent malfunction

- To prevent malfunction caused by high temperature, never install the equalizer in:
  - — Closed places such as under carpet or rear seat.
  - — Places where the heater will blow over them.
- Do not install the equalizer in places where it may be exprosed to rain water.
- Do not install the equalizer on unstable places such as the spare tire board.

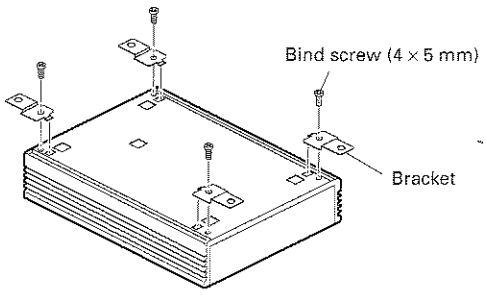
Before installing and fixing:

> Make temporary connections first and check that the equalizer and the system operate properly. If the equalizer or the system does not operate, see "Troubleshooting" (page 16) to check for incorrect connections.

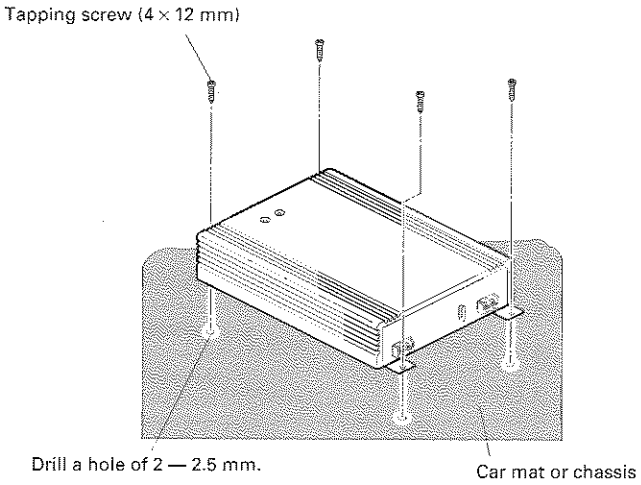
> After installing the equalizer, confirm that the spare tire, jack and tools can be taken out smoothly.

Installing the unit

1. Install the brackets to the bottom of the unit.



2. Install the unit to the vehicle.



Troubleshooting

When an error occurs, locate the cause according to the list below. In most case, the problem is incorrect connections or settings.

1. **Doublecheck the connections and settings using the Checklist.**
2. **If connections and settings are correct, press the Reset button.**

   See "Reset Button" on page 7.

   - **Pressing the Reset button will reset all other audio units such as the crossover network, equalizer, etc. Contact your dealer before pressing the Reset button.**
3. **If the malfunction continues even after pressing the Reset button:**

In case of trouble
When the unit does not operate properly, contact your dealer or the nearest authorized PIONEER Service Station.
In the United States please call 1-800-421-1404 for product information or your nearest service center or 1-800-228-7221 for information on parts.

Checklist

Symptom	Cause	Remedy	See:
No operation (no sound).	The battery is not connected.	Connect the battery.	—
	An orange lead is not properly connected.	Connect all orange leads to the battery terminal, supplied with constant power, regardless of the ignition switch position after running them through the vehicle's fuse unit.	11 13
	A black lead (ground) is not properly connected.	Firmly connect all the black leads to the vehicle (metal) body.	
	The fuse is blown.	Remove the cause and replace with another fuse of the same rating.	11
	Incorrect connection.	Make sure all the connectors are properly connected.	
Unnatural sound.	Setting switches of other audio units are incorrectly set.	Set the switches correctly.	—
No sound from the center speaker, or unnatural sound.	The speaker lead is disconnected.	Connect the speaker lead properly.	12
	Wrong polarity (+/–) of the speaker lead.	Follow the polarity indicated at the speaker OUTPUT terminal.	

Specifications

GENERAL

Power source ..... DC 14.4 V (10.8 — 15.6 V allowable)
Grounding system ..... Negative type
Current consumption ..... 1 A (without center speaker)
2.5 A (rated power of center speaker)
Fuse ..... 4 A
Dimensions ..... 202 (W) × 56 (H) × 260 (D) mm
[8 (W) × 2-1/4 (H) × 10-1/4 (D) in.]
Weight ..... 2.7 kg (5.9 lbs.)

DSP/PREAMP

Tone controls (parametric)
Bass frequency ..... 63 Hz, 100 Hz, 160 Hz, 250 Hz
Treble frequency ..... 4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Level ..... ±12 dB
31-band graphic equalizer (front/rear)
Frequency ..... 20 Hz — 20 kHz, 1/3 oct.
Level ..... ±12 dB
NAC (Natural Acoustic Control)
Early reflection..... Initial delay: 2 — 22 msec.
Liveness: ±10 step
Room size: ±10 step
Level: –20 — +5 dB
HF reflection: ±2 step
Reverberation ..... Initial delay: 30 — 120 msec.
Level: –20 — +10 dB
Reverberation time: 400 — 3,150 msec.
HF reverberation: ±2 step
Reverberation fader: 0 — –10 dB

Center speaker network
..... HPF frequency: 100 Hz — 10 kHz, 1/3 oct.
Slope: –12 dB/oct.
LPF frequency: 630 Hz — PASS, 1/3 oct.
Slope: –6 dB/oct. or PASS
Level: 0 — –24 dB (0.5 dB)
Time: 0 — 10 msec.
Position adjustment ..... Time: 0 — 10 msec.
Level: 0 — –30 dB
Sampling frequency ..... 44.1 kHz
Digital input ..... Optical input
Digital output ..... Two systems, optical output
(front/rear separately)

POWER AMPLIFIER

Maximum power output ..... 30 W
Continuous power output
..... 15 W (20 Hz — 20 kHz, 1%, 4 Ω)
Load impedance ..... 4 Ω (4 — 8 Ω allowable)

> These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

> The specifications and design are subject to change without prior notice.
Products purchased may differ from illustrations of this manual.

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